

WHAT IS CLAIMED IS:

1. A nucleic acid that encodes a non-aggregating chromo- or fluorescent mutant of an aggregating Cnidarian chromo- or fluorescent protein or mutant thereof.

2. The nucleic acid according to Claim 1, wherein said Cnidarian chromo-or fluorescent protein is from a non-bioluminescent Cnidarian species.

3. The nucleic acid according to Claim 2, wherein said non-bioluminescent Cnidarian species is an Anthozoan species.

4. A nucleic acid according to Claim 1, wherein said nucleic acid has a sequence of residues that is substantially the same as or identical to a nucleotide sequence of at least 10 residues in length of SEQ ID NOS:14; 15; 17; 19; 21; and 23.

5. A fragment of the nucleic acid selected according to Claim 1.

6. A construct comprising a vector and a nucleic acid according to Claim 1.

7. An expression cassette comprising:

- (a) a transcriptional initiation region functional in an expression host;
- (b) a nucleic acid according to Claim 1; and
- (c) and a transcriptional termination region functional in said expression host.

8. A cell, or the progeny thereof, comprising an expression cassette according to Claim 7 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

9. A method of producing a chromo and/or fluorescent protein, said method comprising:
growing a cell according to Claim 8, whereby said protein is expressed; and
isolating said protein substantially free of other proteins.

10. A protein or fragment thereof encoded by a nucleic acid according to Claim 1.

11. An antibody binding specifically to a protein according to Claim 10.

12. A transgenic cell or the progeny thereof comprising a transgene that is a nucleic acid according to Claim 1.

13. A transgenic organism comprising a transgene that is a nucleic acid according to Claim 1.
- 5 14. In an application that employs a chromo- or fluorescent protein, the improvement comprising:
employing a protein according to Claim 10.
- 10 15. In an application that employs a nucleic acid encoding a chromo- or fluorescent protein, the improvement comprising:
employing a nucleic acid according to Claim 1.
- 15 16. A kit comprising a nucleic acid according to Claim 1.
17. A method of producing a nucleic acid according to Claim 1, said method comprising:
modulating at least one N-terminal residue codon of an aggregating Cnidarian chromo and/or fluorescent protein encoding sequence to produce said nucleic acid.
- 20 18. The method according to Claim 17, wherein said at least one residue is a basic residue.
19. The method according to Claim 18, wherein said modulation is a substitution of said basic residue for a neutral residue.
- 25 20. The method according to Claim 18, wherein said basic residue is lys or arg.